UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/845,620	04/30/2001	Eric S. Fayeski	778.019US1	2599

7590 01/30/2004

Schwegman, Lundberg, Woessner & Kluth, P.A.
P.O. Box 2938
Minneapolis, MN 55402

EXAMINER	
EWART, JAMES D	

ART UNIT	PAPER NUMBER
2683	

DATE MAILED: 01/30/2004

3

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/845,620	Applicant(s) FAYESKI ET AL.	
	Examiner James D Ewart	Art Unit 2683	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *14* is/are allowed.

6)☒ Claim(s) *1-13 and 15-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *2* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

Specification

1. On page 3, "Brief Description of the ***Drawing***" should be "Brief Description of the ***Drawings***"

Claim Objections

2. Claim 13 indicates that it falls beneath claim 11, but there isn't any mentioning of N and X, therefore the claim should indicate that it is reliant upon claim 12 which does mention N and X. Appropriate correction is required.

3. Claim 14 reads "!00-X% " but should be "100-X%". Appropriate correction is required.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless – (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 16 - 20 are rejected under 35 U.S.C. 102(e) as being anticipated by Jachowski (U.S. Patent No. 4,726,071).

Referring to claim 16, Jachowski teaches a cellular base station comprising (Column 6, Lines 2-20): a plurality of transceivers (Figures 1 and 3); a plurality of corresponding power amplifiers coupled to the transceivers (Column 6, Lines 2-20); an antenna (Column 6, Lines 2-

20); an autotune combiner network having multiple bandpass cavity filters (Figure 3 and Column 1, Line 64 to Column 2, Line 2), wherein at least one bandpass cavity filter further comprises: a receiver that receives tuning commands from a remote location (Column 2, Lines 16-21); a tuning plate responsive to the receiver; and a telescoping tuning housing responsive to the receiver (Column 3, Lines 6-17).

Referring to claim 17, Jachowski further teaches comprising a stepper motor coupled to the tuning plate for moving the tuning plate responsive to the receiver to change Q of the bandpass cavity filter (Figure 1; 11-1 and Column 2, Lines 38-44).

Referring to claim 18, Jachowski further teaches a coupling tuner coupled to the cavity of the bandpass cavity filter for adjusting the Q of the bandpass cavity filter (Column 2, Lines 38-44).

Referring to claim 19, Jachowski further teaches a tuning motor coupled to a tuning actuator for changing the length of a neck in the cavity filter (Figure 3).

Referring to claim 20, Jachowski further teaches a feedback loop for fine tuning the bandpass characteristics of the bandpass cavity filter (Column 2, Lines 38-44).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1 – 8, 12, 13 and 15 are rejected under 35 USC 103(a) as being unpatentable over Jachowski (U.S. Patent No. 4,726,071) and further in view of Mazur et al. (U.S. Patent No. 6,463,054) and further in view of Marchetto et al. (U.S. Patent No. 5,418,818).

Referring to claims 1 and 15, Jachowski teaches a bandpass filter (Column 2, Lines 39-43) for a transmission system (Column 2, Lines 22-23 and Column 6, Lines 13-15) comprising: a cavity capable of resonating at a first frequency (Column 2, Lines 34-46), when cavity parameters are in a set of first conditions (Column 2, Lines 34-46), and at a second frequency, when the cavity parameters are in a set of second conditions (Column 2, Lines 34-46); a movable facility within the cavity for selectively affecting the condition of the parameters of the cavity pursuant to the respective positions thereof (Figure 1; 10); and apparatus for selectively moving the movable facility (Figure 1; 11-1) but does not teach operating with different communication protocols that require different frequencies. Mazur et al teaches operating with different communication protocols that require different frequencies (Column 3, Lines 25-29). Therefore at the time the invention was made, it would have been obvious to a person of ordinary skill in the art to combine the art of Jachowski with the art of Mazur et al of operating with different communication protocols that require different frequencies to enable the introduction of data services in current generation systems (Column 1, Lines 22-23) and to obtain cell specific

information necessary for correct communication (Column 2, Lines 37-38). Jachowski and Mazur et al teach the limitations of claim 1, but do not teach adjusting parameters in response to a signal from a remote location. Marchetto et al teaches adjusting parameters in response to a signal from a remote location (Figure 1; 64 and Column 2, Lines 35-41). Therefore at the time the invention was made, it would have been obvious to a person of ordinary skill in the art to combine the art of Marchetto et al of adjusting parameters in response to a signal from a remote location to be able to set parameters from a remote location (Column 2, Lines 63-64).

Referring to claim 2, Jachowski further teaches wherein: the affected parameters are bandpass Q and insertion loss (Column 1, Line 59 to Column 2, Line 2; Column 2, Lines 39-43; and Column 3, Lines 10-17).

Referring to claim 3, Jachowski further teaches wherein: the movable facilities include an electrically conductive plate movable within the cavity to change the length and, therefore, the Q thereof (Column 1, Line 59 to Column 2, Line 2 and Figure 3 see arrow directions of tuning element).

Referring to claim 4, Jachowski further teaches wherein: the movable facilities include a non-air dielectric element movable within the cavity to alter the Q thereof (Column 1, Line 59 to Column 2, Line 2; Column 2, Lines 39-43; and Column 5, Lines 51-59).

Referring to claim 5, Jachowski further teaches wherein: the movable facilities include an electrically conductive plate movable within the cavity to change the length and, therefore, the Q thereof (Column 1, Line 59 to Column 2, Line 2 and Figure 3 see arrow directions of tuning element).

Referring to claim 6, Jachowski further teaches the affected parameter is center frequency, Mazur et al teaches the affected parameters are bandpass characteristic (Column 3, Line 25-29).

Referring to claim 7, Mazur et al further teaches wherein: the broadcast protocols are AMPS/TDMA at 30 kHz and EDGE at 200 kHz (Column 2, Lines 4-17 and Column 4, Lines 25-41).

Referring to claim 8, Jachowski teaches in a cellular telephone system having a base station which includes an antenna and two transmitters (Figure 1, Figure 3, and Column 6, lines 2-20) a bandpass filter for connecting the antenna to the transmitters (Figure 1), which comprises: a cavity capable of resonating at a first frequency (Column 2, Lines 34-46), when the parameters thereof are collectively in selected first conditions (Column 2, Lines 34-46), and at a second frequency, when the parameters thereof are collectively in selected second conditions (Column 2, Lines 34-46), one or more movable facilities within the cavity for selectively affecting the condition of the parameters of the cavity pursuant to the respective positions thereof (Figure 1; 10); and apparatus for selectively moving the movable facilities (Figure 1; 11-1), but

does not teach operating with different communication protocols that require different frequencies. Mazur et al teaches operating with different communication protocols that require different frequencies (Column 3, Lines 25-29). Therefore at the time the invention was made, it would have been obvious to a person of ordinary skill in the art to combine the art of Jachowski with the art of Mazur et al of operating with different communication protocols that require different frequencies to allow for the introduction of data services in current generation systems (Column 1, Lines 22-23) and to obtain cell specific information necessary for correct communication (Column 2, Lines 37-38). Jachowski and Mazur et al teach the limitations of claim 1, but do not teach adjusting parameters in response to a signal from a remote location. Marchetto et al teaches adjusting parameters in response to a signal from a remote location (Figure 1; 64 and Column 2, Lines 35-41). Therefore at the time the invention was made, it would have been obvious to a person of ordinary skill in the art to combine the art of Marchetto et al of adjusting parameters in response to a signal from a remote location to be able to set parameters from a remote location (Column 2, Lines 63-64).

Referring to claim 12, Jachowski teaches a cellular telephone base station having plural transmitters (Column 3, Lines 6-17 and Figure 1; 2-1), a group of N bandpass filters phased together (Column 6, Lines 5-12 and Figure 3), each filter comprising: a cavity capable of resonating at a first frequency, when the parameters thereof collectively assume selected first conditions (Column 2, Lines 34-46), and at a second frequency when the parameters thereof collectively assume selected second conditions (Column 2, Lines 34-46), one or more movable facilities within the cavity for selectively affecting the condition of the parameters of the cavity

pursuant to the respective positions thereof (Figure 1; 10); and apparatus for selectively moving the movable facilities in response to the receipt of a move command to effect the assumption by the cavity parameters of the first selected conditions or the second selected conditions (Figure 1; 11-1), so that a number, X, of the cavities resonate at the first frequency and N-X of the cavities resonate at the second frequency (Column 3, Lines 6-17), X being from zero through N (Column 3, Lines 6-17), but does not teach each transmitter is compliant with one or the other of two respective broadcast protocols using the time division multiple access protocol and the transmitters are connected to an antenna and the antenna's transmission is made up of X/N of the first frequency and (N-X)/N of the second frequency, the antenna accordingly being capable of transmitting from 0% to 100% of each frequency in increments of 1/N%. Mazur et al teaches each transmitter is compliant with one or the other of two respective broadcast protocols (Column 3, Lines 25-29) using the time division multiple access protocol (Column 4, Lines 37-41) and the transmitters are connected to an antenna and the antenna's transmission is made up of X/N of the first frequency and (N-X)/N of the second frequency, the antenna accordingly being capable of transmitting from 0% to 100% of each frequency in increments of 1/N% (Column 4, Lines 37-41). Therefore at the time the invention was made, it would have been obvious to a person of ordinary skill in the art to combine the art of Jachowski with the art of Mazur et al each transmitter is compliant with one or the other of two respective broadcast protocols using the time division multiple access protocol and the transmitters are connected to an antenna and the antenna's transmission is made up of X/N of the first frequency and (N-X)/N of the second frequency, the antenna accordingly being capable of transmitting from 0% to 100% of each frequency in increments of 1/N% to enable the introduction of data services in current generation

systems (Column 1, Lines 22-23) and to obtain cell specific information necessary for correct communication (Column 2, Lines 37-38). Jachowski and Mazur et al teach the limitations of claim 1, but do not teach adjusting parameters in response to a signal from a remote location. Marchetto et al teaches adjusting parameters in response to a signal from a remote location (Figure 1; 64 and Column 2, Lines 35-41). Therefore at the time the invention was made, it would have been obvious to a person of ordinary skill in the art to combine the art of Marchetto et al of adjusting parameters in response to a signal from a remote location to be able to set parameters from a remote location (Column 2, Lines 63-64).

Referring to claim 13, Jachowski further teaches wherein N=4 and X varies from 0 to 4 (Figure 3). The number of cavities and the distribution of the two protocols for the cavities is a design choice.

7. Claims 9 - 11 are rejected under 35 USC 103(a) as being unpatentable over Jachowski Mazur et al. and Marchetto et al. and further in view of Blachier et al (U.S. Patent No. 3,697,898).

Referring to claim 9, Jachowski further teaches wherein: the movable facilities and the selective moving apparatus comprise and a prime mover associated with an element for movement thereof in response to energization thereof (Figure 1), but neither Jachowski Mazur et al. and Marchetto et al. teach movement of individual elements, each of which affects a parameter of the cavity. Blachier et al teaches movement of individual elements, each of which

affects a parameter of the cavity (Figure 1a, 9-14). Therefore, at the time the invention was made, it would have been obvious to a person of ordinary skill in the art to combine the art of Jachowski Mazur et al. and Marchetto et al. with the art of Blachier et al of movement of individual elements, each of which affects a parameter of the cavity to provide steep response skirts for the band pass of a filter (Column 2, Lines 55-56)

Referring to claim 10, Jachowski further teaches each prime mover comprises a selectively energizable electric motor connected to its element and mounted with respect to the cavity so that energization of the motor translates the element (Figure 1).

Referring to claim 11, Jachowski further teaches one or more prime movers may be selectively, individually connected to plural elements by the move command (Column 3, Lines 6-17).

Allowable Subject Matter

8. Claim 14 is allowed. The following is an examiner's statement of reasons for allowance:

Regarding claim 14, the references sited do not teach a dual mode combiner employable to interconnect an antenna to two transmitters each compliant with a respective broadcast protocol, which comprises: a cavity capable of resonating simultaneously at a first frequency and a second frequency, the first frequency being compatible with one of the broadcast protocols and the second frequency being compatible with the other protocol; one or more first movable

facilities within the cavity for selectively affecting the condition of the parameters of the cavity pursuant to the respective positions thereof so that if the capacity of ***the cavity for one of the frequencies is X%, the capacity of the cavity for the other frequency is 100-X%; one or more second movable facilities within the cavity for selectively affecting the condition of the parameters of the cavity pursuant to the respective positions thereof so that the center frequency of the cavity's bandpass characteristics may be adjusted***; and apparatus for selectively moving the movable facilities in response to the receipt of a move command from a location, which is remote from the cavity, to effect the assumption by the cavity parameters of the first selected conditions or the second selected conditions.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Barnett et al. U.S. Patent No. 4,567,401 discloses wide-band distributed RF coupler

Dimon U.S. Patent No. 4,339,829 discloses automatic tuning system for narrow bandwidth communication

Jachowski U.S. Patent No. 5,446,729 discloses compact, low-intermodulation multiplexer employing interdigital filters.

Lin U.S. Patent No. 5,926,752 discloses apparatus and method for remote convenience message transmission with a tunable filter receiver.

Merlock U.S. Patent No. 6,359,533 discloses Combline filter and method of use thereof.

Niemela U.S. Patent No. 6,347,222 discloses tuning method and transceiver unit.

Persson et al. U.S. Patent No. 6,647,000 discloses methods and apparatus for performing slot hopping of logical control channels in wireless communications systems

Phillips U.S. Patent No. 6,643,503 discloses wireless speaker for radio communication device.

Slekys et al. U.S. Patent No. 5,396,539 discloses cellular data overlay system for storing data identifying selected data allocated channels.

Small et al. U.S. Patent No. 6,529,104 discloses temperature compensated high power bandpass filter.

Yared et al. U.S. Patent No. 6,452,940 discloses mobile station migration from D-Amps packet system to EDGE/GPRS packet system in an integrated wireless network.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to James D Ewart whose telephone number is (703) 305-4826. The examiner can normally be reached on M-F 7am - 4pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Trost can be reached on (703)308-5318. The fax phone numbers for the organization

where this application or proceeding is assigned are (703)305-9508 for regular communications and (703)305-9508 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)305-3900.

Ewart
January 22, 2004

WILLIAM TROST
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600